



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590



March 31, 2011

SR-6J

REPLY TO THE ATTENTION OF

Mr. Brad Winn
Site Manager
Lewis and Clark State Historic Site
One Lewis & Clark Trail
Hartford, Illinois 62048

Re: Soil and surface sampling

Dear Mr. Winn:

As you know, the United States Environmental Protection Agency (EPA) took soil and water samples from the on January 11, 2011. Five soil samples down to three inches were combined from each of two locations in the grassy area near the building. These composite soil samples was analyzed for total metals. Two surface wipe samples were taken from the picnic tables and analyzed for total metals also. Enclosed are your results.

For soil, the levels of most metals reflected in the enclosed results for the property were below current preliminary screening levels (draft cleanup goals) recommended by EPA. A table of these screening levels is enclosed for your information. Arsenic and vanadium were measured at levels above the preliminary screening levels. Arsenic was measured in the two samples at 5.5 and 5.9 milligrams per kilogram (mg/kg). Based on information from the United States Geologic Survey¹, normal background levels of arsenic in the Hartford area are expected to be 6-9 mg/kg. The background (reference) soil sample collected for this project had 5.6 mg/kg of arsenic. Globally, background arsenic in soil can range from 1-40 mg/kg². The EPA's removal action level for arsenic is 39 mg/kg.

Vanadium was measured in the two samples at 17.7 and 19.1 mg/kg. Regional data from Michigan³ notes that normal background levels of vanadium in that state average 12.5 mg/kg and can range from 2-89 mg/kg. The background (reference) soil sample collected for this project had 21 mg/kg of vanadium. The EPA's removal action level for vanadium is 57 mg/kg. Both arsenic and vanadium occur naturally in Earth's crust, but are also byproducts of burning fossil fuels.

¹ Smith, D.B. and Goldhaber, M.B. (March 2003). *Geochemical Landscapes of the United States*. *USGS Mineral News*, 2(1). Retrieved from <http://minerals.usgs.gov/news/newsletter/v2n1/2geochem.html>

² Gomez-Camirero, A. et al. (2001). *Environmental Health Criteria 224 Arsenic and Arsenic Compounds*. *United Nations Environment Programme, the International Labour Organization, and the World Health Organization*. Retrieved from <http://www.inchem.org/documents/ehc/ehc/ehc224.htm>

³ Michigan Department of Environmental Quality. (2005). *Michigan Background Soil Survey 2005*. Retrieved from http://www.michigan.gov/documents/deq/deq-whm-hwp-Michigan-Background-Soil-revJuly2005_248097_7.pdf

At this time there is no cause for concern, but we will collect and evaluate more sample data during the remedial investigation. This will include a complete risk assessment for human health and ecological risks.

The surface wipe samples showed no inorganic elements above preliminary screening levels. Again, the purpose of this sampling was to check for immediate threats in the areas closest to the Chemetco Superfund site, update data collected by Illinois Environmental Protection Agency, begin scoping the larger remedial investigation planned for the site, and to aid our search for potentially responsible parties for the site.

Thank you for participating and allowing us to access the Lewis and Clark site. If you have any questions regarding this work or the results, please contact me at (312) 886-8961 or kerr.michelle@epa.gov.

Sincerely,



Michelle Kerr
Remedial Project Manager
Superfund Division

Enclosures: Screening Levels
Sample Results

Preliminary Screening Levels--Soil Inorganic

Chemical	Screening Level (mg/kg)
Aluminum	77400
Antimony (metallic)	31.3
Arsenic, Inorganic	0.389
Barium	15300
Beryllium and compounds	156
Cadmium (Diet)	70
Calcium	
Chromium(III), Insoluble Salts	117000
Cobalt	23.4
Copper	3130
Cyanide (CN-)	1560
Iron	54800
Lead and Compounds	400
Magnesium	
Mercury (elemental)	5.6
Nickel Soluble Salts	1550
Potassium	
Selenium	391
Silver	391
Sodium	
Thallium (Soluble Salts)	
Vanadium, Metallic	5.74
Zinc (Metallic)	23500

US EPA Regional Screening Levels, November 2010, for Residential scenario
 Available: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm

Preliminary Screening Levels--Water Inorganic

Chemical	MCL/TT_VALUE	UNITS
Antimony		6 ug/L
Arsenic		10 ug/L
Barium		2000 ug/L
Beryllium		4 ug/L
Cadmium		5 ug/L
Chromium		100 ug/L
Cobalt	--	ug/L
Copper		1300 ug/L
Cyanide		200 ug/L
Lead		15 ug/L
Manganese	--	ug/L
Mercury		2 ug/L
Nickel	--	ug/L
Selenium		50 ug/L
Silver	--	ug/L
Thallium		2 ug/L
Vanadium	--	ug/L
Zinc	--	ug/L

US EPA National Primary Drinking Water Standards, Maximum Contaminant Limits (or Treatment Techniques), May 2009

Preliminary Screening Levels--Water Organic

Chemical	MCL/TT_V UNITS
1,1,1-Trichloroethane	200 ug/L
1,1,2,2-Tetrachloroethane --	ug/L
1,1,2-Trichloro-1,2,2-trifluoroethane --	ug/L
1,1,2-Trichloroethane	5 ug/L
1,1-Dichloroethane	5 ug/L
1,1-Dichloroethene	7 ug/L
1,2,3-Trichlorobenzene --	ug/L
1,2,4-Trichlorobenzene	70 ug/L
1,2-Dibromo-3-chloropropane	0.2 ug/L
1,2-Dibromoethane --	ug/L
1,2-Dichlorobenzene	600 ug/L
1,2-Dichloroethane	5 ug/L
1,2-Dichloropropane	5 ug/L
1,3-Dichlorobenzene --	ug/L
1,4-Dichlorobenzene	75 ug/L
1,4-Dioxane --	ug/L
2-Butanone --	ug/L
2-Hexanone --	ug/L
4-Methyl-2-Pentanone --	ug/L
Acetone --	ug/L
Benzene	5 ug/L
Bromochloromethane --	ug/L
Bromodichloromethane --	ug/L
Bromoform --	ug/L
Bromomethane --	ug/L
Carbon disulfide --	ug/L
Carbon tetrachloride	5 ug/L
Chlorobenzene	100 ug/L
Chloroethane --	ug/L
Chloroform --	ug/L
Chloromethane --	ug/L
cis-1,2-Dichloroethene	70 ug/L
cis-1,3-Dichloropropene --	ug/L
Cyclohexane --	ug/L
Dibromochloromethane --	ug/L
Dichlorodifluoromethane --	ug/L
Ethylbenzene	700 ug/L
Isopropylbenzene --	ug/L

Preliminary Screening Levels--Water Organic, continued

Chemical	MCL/TT_V UNITS
m,p-Xylene	10000 ug/L
Methyl acetate	-- ug/L
Methyl tert-butyl ether	-- ug/L
Methylcyclohexane	-- ug/L
Methylene chloride	5 ug/L
o-Xylene	10000 ug/L
Styrene	100 ug/L
Tetrachloroethene	5 ug/L
Toluene	1000 ug/L
trans-1,2-Dichloroethene	100 ug/L
trans-1,3-Dichloropropene	-- ug/L
Trichloroethene	5 ug/L
Trichlorofluoromethane	-- ug/L
Vinyl chloride	2 ug/L

US EPA National Primary Drinking Water Standards, Maximum Contaminant Limits (or Treatment Techniques), May 2009



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Superfund, US EPA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Chemetco Project Number: [none] Project Manager: Chi Tang	Reported: Jan-28-11 14:18
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Metals on Wipes by ICP
TechLaw - ESAT Contract

OS-3 (E110101-01) Wipe Sampled: Jan-11-11 16:31 Received: Jan-14-11 14:00

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	171		1.80	10.0	ug/wipe	1	EA12002	Jan-24-11	Jan-25-11
Barium	13.7		0.05	10.0	"	"	"	"	"
Beryllium	0.01	J	0.01	0.25	"	"	"	"	"
Calcium	1580		1.30	250	"	"	"	"	"
Chromium	1.55	K	0.02	0.50	"	"	"	"	"
Cobalt	0.30	J, L	0.02	2.50	"	"	"	"	"
Copper	11.8		0.10	1.25	"	"	"	"	"
Iron	374	K	1.00	5.00	"	"	"	"	"
Magnesium	232	J, K	1.25	250	"	"	"	"	"
Manganese	11.4		0.02	0.75	"	"	"	"	"
Nickel	1.20	J	0.10	2.00	"	"	"	"	"
Potassium	123	J	6.25	250	"	"	"	"	"
Silver	U		0.10	0.50	"	"	"	"	"
Sodium	1210		2.50	250	"	"	"	"	"
Vanadium	0.49	J	0.08	2.50	"	"	"	"	"
Zinc	73.6		0.25	3.00	"	"	"	"	"

OS-4 (E110101-02) Wipe Sampled: Jan-11-11 16:43 Received: Jan-14-11 14:00

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	121		1.80	10.0	ug/wipe	1	EA12002	Jan-24-11	Jan-25-11
Barium	10.6		0.05	10.0	"	"	"	"	"
Beryllium	U		0.01	0.25	"	"	"	"	"
Calcium	1400		1.30	250	"	"	"	"	"
Chromium	1.18	K	0.02	0.50	"	"	"	"	"
Cobalt	0.28	J, L	0.02	2.50	"	"	"	"	"
Copper	9.02		0.10	1.25	"	"	"	"	"
Iron	259	K	1.00	5.00	"	"	"	"	"
Magnesium	224	J, K	1.25	250	"	"	"	"	"
Manganese	8.78		0.02	0.75	"	"	"	"	"
Nickel	0.94	J, L	0.10	2.00	"	"	"	"	"
Potassium	67.6	J	6.25	250	"	"	"	"	"
Silver	U		0.10	0.50	"	"	"	"	"
Sodium	1080		2.50	250	"	"	"	"	"


 Stephen Connet, Chemist

1-28-11

Report Name: E110101 FINAL Jan 28 11 1418

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Metals on Wipes by ICP
TechLaw - ESAT Contract

OS-4 (E110101-02) Wipe Sampled: Jan-11-11 16:43 Received: Jan-14-11 14:00

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Vanadium	0.36	J	0.08	2.50	ug/wipe	1	EA12002	Jan-24-11	Jan-25-11
Zinc	42.3		0.25	3.00	"	"	"	"	"

OS-FB (E110101-03) Wipe Sampled: Jan-13-11 18:00 Received: Jan-14-11 14:00

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	20.9		1.80	10.0	ug/wipe	1	EA12002	Jan-24-11	Jan-25-11
Barium	1.30	J	0.05	10.0	"	"	"	"	"
Beryllium	U		0.01	0.25	"	"	"	"	"
Calcium	388		1.30	250	"	"	"	"	"
Chromium	0.51	K	0.02	0.50	"	"	"	"	"
Cobalt	0.08	J, L	0.02	2.50	"	"	"	"	"
Copper	2.59		0.10	1.25	"	"	"	"	"
Iron	38.3	K	1.00	5.00	"	"	"	"	"
Magnesium	54.2	J, K	1.25	250	"	"	"	"	"
Manganese	1.72		0.02	0.75	"	"	"	"	"
Nickel	0.29	J, L	0.10	2.00	"	"	"	"	"
Potassium	376		6.25	250	"	"	"	"	"
Silver	U		0.10	0.50	"	"	"	"	"
Sodium	1010		2.50	250	"	"	"	"	"
Vanadium	U		0.08	2.50	"	"	"	"	"
Zinc	24.3		0.25	3.00	"	"	"	"	"

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Stephen Connet, Chemist

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77 West Jackson Boulevard
Chicago IL, 60604

Project: Chemetco
Project Number: [none]
Project Manager: Chi Tang

Reported:
Jan-28-11 14:18

Notes and Definitions

- L The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported value.
- K The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- U Not Detected
- NR Not Reported

 1-28-11

Stephen Cornet, Chemist

Report Name: E110101 FINAL Jan 28 11 1418

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Metals by ICP-MS EPA 6020 (modified)
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OS-3 (E110101-01) Wipe Sampled: Jan-11-11 16:31 Received: Jan-14-11 14:00

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	13.8		0.0625	1.25	ug/wipe	5	EA12002	Jan-24-11	Jan-26-11
Arsenic	0.491	J, K	0.125	0.625	"	"	"	"	"
Cadmium	0.314	J	0.0250	0.625	"	"	"	"	"
Lead	11.3		0.0250	0.625	"	"	"	"	"
Selenium	U		0.125	3.12	"	"	"	"	"
Thallium	U		0.0250	0.625	"	"	"	"	"

OS-4 (E110101-02) Wipe Sampled: Jan-11-11 16:43 Received: Jan-14-11 14:00

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	17.0		0.0625	1.25	ug/wipe	5	EA12002	Jan-24-11	Jan-26-11
Arsenic	0.717	K	0.125	0.625	"	"	"	"	"
Cadmium	0.261	J	0.0250	0.625	"	"	"	"	"
Lead	10.8		0.0250	0.625	"	"	"	"	"
Selenium	U		0.125	3.12	"	"	"	"	"
Thallium	U		0.0250	0.625	"	"	"	"	"

OS-FB (E110101-03) Wipe Sampled: Jan-13-11 18:00 Received: Jan-14-11 14:00

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	7.82		0.0625	1.25	ug/wipe	5	EA12002	Jan-24-11	Jan-26-11
Arsenic	0.401	J, K	0.125	0.625	"	"	"	"	"
Cadmium	0.130	J	0.0250	0.625	"	"	"	"	"
Lead	2.37		0.0250	0.625	"	"	"	"	"
Selenium	U		0.125	3.12	"	"	"	"	"
Thallium	U		0.0250	0.625	"	"	"	"	"

Paul Little 1/31/11
 Paul Little, Chemist

Report Name: E110101 FINAL Jan 31 11 1101

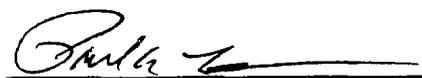


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Notes and Definitions

- L The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported value.
- K The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- U Not Detected
- NR Not Reported

 1/31/11
 Paul Little, Chemist



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Project: Chemetco
Project Number: [none]
Project Manager: Chi Tang

Reported:
Feb-08-11 14:01

Automated Colorimetric Analyses
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DS-3 (E110101-01) Wipe Sampled: Jan-11-11 16:31 Received: Jan-14-11 14:00

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Cyanide (total)	0.16	J	0.15	0.50	ug/wipe	1	EA12001	Jan-21-11	Jan-24-11

DS-4 (E110101-02) Wipe Sampled: Jan-11-11 16:43 Received: Jan-14-11 14:00

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Cyanide (total)	U		0.15	0.50	ug/wipe	1	EA12001	Jan-21-11	Jan-24-11

DS-FB (E110101-03) Wipe Sampled: Jan-13-11 18:00 Received: Jan-14-11 14:00

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Cyanide (total)	U		0.15	0.50	ug/wipe	1	EA12001	Jan-21-11	Jan-24-11

Linda G. Moore 2/8/11
Linda Moore, Chemist

Report Name: E110101 FINAL Feb 08 11 1401

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Superfund, US EPA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Chemetco Project Number: [none] Project Manager: Chi Tang	Reported: Feb-08-11 14:01
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Notes and Definitions

- J The identification of the analyte is acceptable; the reported value is an estimate.
- U Not Detected
- NR Not Reported

Linda Moore 2/8/11
Linda Moore, Chemist

Report Name: E110101 FINAL Feb 08 11 1401

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Cold Vapor Analyses
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OS-3 (E110101-01) Wipe Sampled: Jan-11-11 16:31 Received: Jan-14-11 14:00

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	0.004	J	0.002	0.010	ug/wipe	1	EA12601	Jan-26-11	Jan-27-11

OS-4 (E110101-02) Wipe Sampled: Jan-11-11 16:43 Received: Jan-14-11 14:00

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	0.005	J	0.002	0.010	ug/wipe	1	EA12601	Jan-26-11	Jan-27-11

OS-FB (E110101-03) Wipe Sampled: Jan-13-11 18:00 Received: Jan-14-11 14:00

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	0.004	J	0.002	0.010	ug/wipe	1	EA12601	Jan-26-11	Jan-27-11

Linda Moore 2/11/11
 Linda Moore, Chemist

Report Name: E110101 FINAL Feb 11 11 13:57



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Notes and Definitions

- J The identification of the analyte is acceptable; the reported value is an estimate.
- U Not Detected
- NR Not Reported

Linda Moore
Linda Moore, Chemist

Case No:	40949	Contract:	EPW09044	SDG No:	ME52Z5	Lab Code:	STLV
Sample Number:	ME5306	Method:	CN	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	OS-1	pH:		Sample Date:	01112011	Sample Time:	15:07:00
% Moisture :		% Solids :			76.3		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Cyanide	0.80	mg/kg	1.0		J+	Yes	S2BVE

Case No:	40949	Contract:	EPW09044	SDG No:	ME5225	Lab Code:	STLV
Sample Number:	ME5306	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	OS-1	pH:		Sample Date:	01112011	Sample Time:	15:07:00
Moisture :		% Solids :	76.3				

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	6980	mg/kg	1.0			Yes	S2BVE
Antimony	6.2	mg/kg	1.0	UN	UJ	Yes	S2BVE
Arsenic	5.5	mg/kg	1.0			Yes	S2BVE
Barium	149	mg/kg	1.0			Yes	S2BVE
Beryllium	0.37	mg/kg	1.0	J	J	Yes	S2BVE
Cadmium	0.92	mg/kg	1.0			Yes	S2BVE
Calcium	2590	mg/kg	1.0			Yes	S2BVE
Chromium	10.3	mg/kg	1.0			Yes	S2BVE
Cobalt	6.2	mg/kg	1.0			Yes	S2BVE
Copper	44.0	mg/kg	1.0			Yes	S2BVE
Iron	10500	mg/kg	1.0			Yes	S2BVE
Lead	37.2	mg/kg	10.0	DE	J	Yes	S2BVE
Magnesium	2180	mg/kg	1.0			Yes	S2BVE
Manganese	588	mg/kg	20.0	D	J	Yes	S2BVE
Nickel	14.8	mg/kg	1.0			Yes	S2BVE
Potassium	1970	mg/kg	1.0			Yes	S2BVE
Selenium	3.6	mg/kg	1.0	U	U	Yes	S2BVE
Silver	1.0	mg/kg	1.0	UN	UJ	Yes	S2BVE
Sodium	42.5	mg/kg	1.0	J	J	Yes	S2BVE
Thallium	2.6	mg/kg	1.0	U	U	Yes	S2BVE
Vanadium	17.7	mg/kg	1.0			Yes	S2BVE
Zinc	94.3	mg/kg	1.0		J	Yes	S2BVE

Case No:	40949	Contract:	EPW09044	SDG No:	ME52Z5	Lab Code:	STLV
Sample Number:	ME5306	Method:	Hg	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	OS-1	pH:		Sample Date:	01112011	Sample Time:	15:07:00
% Moisture :		% Solids :	76.3				

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Mercury	0.030	mg/kg	1.0	J	J-	Yes	S2BVE

Case No:	40949	Contract:	EPW09044	SDG No:	ME52Z5	Lab Code:	STLV
Sample Number:	ME5307	Method:	CN	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	OS-2	pH:		Sample Date:	01112011	Sample Time:	15:10:00
% Moisture :		% Solids :			75.6		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Cyanide	0.76	mg/kg	1.0		J+	Yes	S2BVE

Case No:	40949	Contract:	EPW09044	SDG No:	ME5225	Lab Code:	STLV
Sample Number:	ME5307	Method:	Hg	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	OS-2	pH:		Sample Date:	01112011	Sample Time:	15:10:00
% Moisture :		% Solids :	75.6				

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Mercury	0.016	mg/kg	1.0	J	J-	Yes	S2BVE

Case No:	40949	Contract:	EPW09044	SDG No:	ME5225	Lab Code:	STLV
Sample Number:	ME5307	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	OS-2	pH:		Sample Date:	01112011	Sample Time:	15:10:00
% Moisture :		% Solids :	75.6				

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	7490	mg/kg	1.0			Yes	S2BVE
Antimony	6.5	mg/kg	1.0	UN	UJ	Yes	S2BVE
Arsenic	5.9	mg/kg	1.0			Yes	S2BVE
Barium	183	mg/kg	1.0			Yes	S2BVE
Beryllium	0.46	mg/kg	1.0	J	J	Yes	S2BVE
Cadmium	1.5	mg/kg	1.0			Yes	S2BVE
Calcium	3320	mg/kg	1.0			Yes	S2BVE
Chromium	11.2	mg/kg	1.0			Yes	S2BVE
Cobalt	7.6	mg/kg	1.0			Yes	S2BVE
Copper	162	mg/kg	10.0	D		Yes	S2BVE
Iron	11300	mg/kg	1.0			Yes	S2BVE
Lead	91.6	mg/kg	10.0	DE	J	Yes	S2BVE
Magnesium	2340	mg/kg	1.0			Yes	S2BVE
Manganese	689	mg/kg	20.0	D	J	Yes	S2BVE
Nickel	20.3	mg/kg	1.0			Yes	S2BVE
Potassium	2110	mg/kg	1.0			Yes	S2BVE
Selenium	0.31	mg/kg	1.0	U	J	Yes	S2BVE
Silver	1.1	mg/kg	1.0	UN	UJ	Yes	S2BVE
Sodium	40.5	mg/kg	1.0	J	J	Yes	S2BVE
Thallium	2.7	mg/kg	1.0	U	U	Yes	S2BVE
Vanadium	19.1	mg/kg	1.0			Yes	S2BVE
Zinc	185	mg/kg	1.0		J	Yes	S2BVE

EXES ISM01.2 Data Qualifier Sheet

<u>Qualifiers</u>	<u>Data Qualifier Definitions</u>
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.